REMARKS

Claims 2, 5, 8, 14 and 17 are pending in this application. By this Amendment, claims 2 and 5 are amended, and claims 1, 3, 4, 6, 7, 9-13, 15, 16 and 18 are canceled. Support for amended claims 2 and 5 can be found, for example, at p. 12, lines 9-17, and p. 16, lines 13-16, of the originally filed specification, and Examples 1-1 to 1-3, 4-1, 4-2 and 1-4 to 1-5. No new matter is added.

The courtesies extended to Applicants' representatives by Examiner Hodge at the interview held February 5, 2008, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below and constitute Applicants' record of the interview.

I. Restriction Requirement

By this Amendment, Applicants cancel non-elected claims 6, 12 and 18, without prejudice.

Applicants acknowledge the Finality of the Election of Species requirement. By this Amendment, claim 2 is the only remaining independent claim and is directed to the elected species zirconium. By this Amendment, claim 5 is amended to depend from claim 2 and include the feature, "wherein the surface further comprises magnesium." As claim 5 depends from claim 2, claim 5 includes all of the features of claim 2. Accordingly, upon allowance of claim 2, Applicants respectfully request consideration and allowance of claim 5.

II. Claim Rejection Under 35 U.S.C. §112

The Office Action rejects claims 1, 2, 5-8, 11-14, 17 and 18 under 35 U.S.C. §112, first paragraph, because the specification, while being enabling for how an existence ratio according to the present invention is determined, allegedly does not reasonably provide enablement for how to provide a consistent existence ratio as is recited in the claims.

Claims 1, 6-7, 11-13 and 18 are canceled, rendering their rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims so as to enable one skilled in the pertinent art to make and use the claimed invention. The standard for determining whether the specification meets the enablement requirement is whether the claimed invention is enabled so that any person skilled in the art can make and use the invention without undue experimentation. See In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988) and MPEP § 2164.01.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to: (a) the breadth of the claims; (b) the nature of the invention; (c) the state of the prior art; (d) the level of one of ordinary skill; (e) the level of predictability in the art; (f) the amount of direction provided by the inventor; (g) the existence of working examples; and (h) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. See MPEP § 2164.01(a).

Here, the Office Action fails to provide any of the above-identified factors and, thus, fails to establish a prima facie case of lack of enablement. The Office Action asserts, "it is quite clear to the Examiner that said process is a relative process." However, absent a proper analysis of the Wands factors, the rejection is incomplete. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Even if a proper enablement rejection is made, Applicants respectfully traverse the rejection. The Office Action argues that "Applicants are only measuring the amount of

surface material present in areas that have the greatest material present and then averaging the amount such as 10 times for example." See Office Action at p. 3, lines 8-10. However, the method of measuring and the method of calculating the existence ratio of Zr and the like on a surface are described in the specification sufficiently to enable one of ordinary skill in the art to determine the existence ratio. See specification at p. 25, line 4 - p. 28, line 19.

Beginning at page 25, line 5 of the specification, Applicants enable one of ordinary skill in the art how to determine the recited existence ratio. According to the specification, at p. 25, line 5 - p. 26, line 20, the existence ratio of a surface element on a surface of a lithium-transition metal composite oxide is determined by the following:

First, a group of particles of a lithium-transition metal composite oxide is observed for an existence state of zirconium on particle surface using an electron probe microanalyzer (EPMA) equipped with a wavelength dispersive X-ray photospectrometer (WDX). Then, a part at which the amount of zirconium per unit area is the largest (part with the highest zirconium peak, that is, part with the maximum peak) in a visual field of the observation is selected and line analysis is performed along a line segment (line segment having a length of 260 μm or 300 μm, for example) passing through this part. In the line analysis, sum of lengths of parts having peak values of 4% or more, defining that the above-mentioned part at which the amount of zirconium per unit area is largest has a peak value (maximum peak value) of 100%, is divided by the length of the line segment. The quotient is defined as an "existence ratio of zirconium on surface of lithium-transition metal composite oxide". Note that an average value of the "existence ratio of zirconium on surface of lithium-transition metal composite oxide" is preferably determined by repeating the line analysis on any surface of the lithium-transition metal composite oxide for a plurality of times (10 times, for example).

In the above-mentioned method, parts at which the peak value of zirconium is less than 4% are not included in the existence ratio of the present invention because of a large difference with the part at which the amount of zirconium per unit area is largest.

The above-mentioned "existence ratio of zirconium on surface of lithium-transition metal composite oxide" can express whether zirconium exists uniformly or exists unevenly on the surface of the lithium-transition metal composite oxide. To be specific, the larger the existence ratio is, the more uniformly the zirconium exists on the surface of the lithium-transition metal composite oxide.

Furthermore, Fig. 1 shows the results of line analysis on the lithium-zirconium composite oxide obtained in Example 1-1 for two points within a line segment of 260 μm using EPMA. In Fig. 1, the x-axis represents the distance on which the measurement is performed and the y-axis represents the amount of Zr. The amount of Zr at the point selected

is displayed as 100%. Fig. 1 shows that the lithium-transition metal composite oxide in Example 1-1 had zirconium uniformly dispersed on the particle surface thereof with little segregation. See specification at p. 87, lines 1-12, p. 88, lines 13-18, and Fig. 1.

Fig. 2 shows results of line analysis on the lithium-transition metal composite oxide obtained in Comparative Example 1-1 for two points within a line segment of 260 μm using EPMA. Fig. 2 shows that zirconium hardly existed, or was segregated even if present on the particle surface of the lithium-transition metal composite oxide in Comparative Example 1-1. See specification at p. 87, lines 1-4, p. 88, line 3-8, p. 88, line 19 - p. 89, line 1, and Fig. 2.

The Office Action argues that, "Applicants further state that areas that have a less than 4% existence ratio are completely ignored. If for example 10 measurements are taken and half of those measurements are less than 4% than only 5 of the measured areas will be used in the average ..." See Office Action at p. 3, lines 10-13.

However, the method disclosed in the specification does not ignore the areas that have a less than 4% existence ratio, but ignores the areas in which the peak values are less than 4%. Thus, the areas that have less than 4% peak values are not counted in the total length. Additionally, because the Zr amount in the point selected after mapping is set as 100%, all of the areas are used for averaging and none of them are ignored. See specification at p. 25, line 20 - p. 26, line1 and p. 26, lines 9-13.

As the Office Action fails to establish a prima facie case of lack of enablement and the specification and figures convey to one of ordinary skill in the art how to determine the recited existence ratio, reconsideration and withdrawal of the rejection are respectfully requested.

III. <u>Claim Rejections Under 35 U.S.C. §102 and §103</u>

The Office Action rejects claims 1, 2, 5-8, 11-14, 17 and 18 under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103 as obvious over Ooya et al.

(U.S. Patent Application Publication No. 2002/0127473) (hereinafter "Ooya"). Claims 1, 6-7, 11-13 and 18 are canceled, rendering their rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

As amended, claim 2 includes the feature that the "existence ratio of zirconium is 20% or more on a surface of the lithium-transition metal composite oxide." Ooya does not disclose, teach or suggest this feature.

As described in the present specification, Example 1-1 provides an existence ratio of Zr to be 98.3%, whereas Comparative Example 1-1 provides an existence ratio of Zr to be 12.8%. See specification at p. 87, lines 5-12 and p. 88, lines 3-8.

Fig. 2 shows the results of the line analysis on the lithium-transition metal composite oxide obtained in Comparative Example 1-1 for two points within a line segment of 260 μm using EPMA. Fig. 2 shows that zirconium hardly existed, or was segregated even if present on the particle surface of the lithium-transition metal composite oxide in Comparative Example 1-1. See specification at p. 88, line 19- p. 89, line 1.

Table 1 shows that the positive electrode active materials of Examples 1-1 and 1-2 have excellent high rate characteristics and high-high rate characteristics at high potentials. In addition, Examples 1-1 and 1-2 also exhibit excellent power characteristics and low-temperature power characteristics because impedance and low-temperature impedance are small. See specification at p. 98, lines 4-11 and Table 1. Examples 1-1 and 1-2 also exhibit excellent low-temperature high rate characteristics and thermal stability. See specification at p. 98, lines 12-14.

On the other hand, Comparative Example 1-1 showed poor potential, poor high rate characteristics, poor high-high rate characteristics, poor low-temperature high rate characteristics, poor power characteristics, poor low-temperature power characteristics, and poor thermal stability. See specification at p. 98, lines 15 - p. 99, line 4.

Comparative Example 1-1 is similar to the examples disclosed in Ooya, because both Comparative Example 1-1 and the Ooya examples are prepared by blending dry metal-oxide powders. Preparing the active material by a dry method precludes the presence of lithium zirconate on the surface of the active material, because there is no calcining step of an aqueous mixture in a dry method. On the other hand, Example 1-1 is prepared by washing the salt of composite metal of Co and Zr with water, heating the salt, blending the Li compound into the salt, and then calcining the resulting mixture. Thus, one of ordinary skill in the art would have appreciated that Comparative Example 1-1 is similar to the examples disclosed in Ooya.

Because Examples 1-1 and 1-2 show unexpected results over Comparative Example 1-1 and Comparative Example 1-1 is similar to the examples disclosed in Ooya, one of ordinary skill in the art would appreciate that the examples disclosed in Ooya do not have the claimed existence ratio.

As Ooya does not disclose, teach or suggest each and every feature of claim 2, claim 2 is not anticipated by Ooya and would not have been rendered obvious by Ooya. Claims 5, 8, 14 and 17 variously depend from clam 2 and, thus, also are not anticipated by Ooya and would not have been rendered obvious by Ooya. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Attachment:
Petition for Extension of Time

Date: February 11, 2008

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